

RIVERINE FLOATING MAT

Concept: Riverine Floating Mats are beds of free-floating vegetation in still waters on the edges of rivers. This community is currently defined conceptually to include any vegetation of large free-floating plants along Coastal Plain flowing or tidal rivers but examples are known only along blackwater rivers in the lower flowing reaches and upper tidal reaches. They are typically dominated or codominated by *Hydrocotyle ranunculoides* or the exotic *Alternanthera philoxeroides* but may be dominated by other native species. Beds consisting solely of diminutive floating plants such as *Lemna* spp. are not included.

Distinguishing Features: The Riverine Floating Mat community is distinguished by floating vegetation of *Hydrocotyle ranunculoides* or similar plants in river channels or waters connected to a river. Beds consisting solely of exotic species such as *Alternanthera philoxeroides* or floating *Murdannia keisak* should not be treated as this community unless there is evidence they once were dominated by native floating species. However, beds with native species that are overgrown by these exotic species should be treated as degraded examples. Beds dominated by rooted floating-leaf plants such as *Nuphar advena* or *Nuphar sagittifolia* are treated as Sand and Mud Bar. Water with only diminutive floating plants such as *Lemna*, *Wolffia*, *Wolffiella*, or *Azolla* is treated as an unclassified aquatic community.

Synonyms: *Hydrocotyle ranunculoides* - (*Sacciolepis striata*) Floating Herbaceous Vegetation (CEGL004305).

Ecological Systems: Atlantic Coastal Plain Small Blackwater River Floodplain Forest (CES203.249).

Sites: Riverine Floating Mats occur in backwaters or still edges of channels in the lower flowing reaches or upper tidal reaches of rivers. Water is generally several feet deep but may be shallower.

Soils: No soil is present. The mat does not typically interact with the river bed, but forms a dense mat of interlaced stems, rhizomes, and fibrous roots.

Hydrology: The sites of Riverine Floating Mats are permanently flooded. The vegetation floats on the surface of the water.

Vegetation: Riverine Floating Mats are most typically dominated by *Hydrocotyle ranunculoides* in its natural condition, but the exotic *Alternanthera philoxeroides* has often become dominant or codominant. In the center of mats, *Sacciolepis striata* will often dominate. Small numbers of other plants such as *Limnobium spongia*, *Pontederia cordata*, *Dichanthelium scabriusculum*, *Decodon verticillatus*, or *Iris virginica* may be present. Diminutive floating plants such as *Lemna* spp., *Wolffia* spp., or *Wolffiella gladiata* may be present in small openings with uncovered water. Unusual examples dominated by different species, such as *Hymenachne (Panicum) hemitomom*, *Ludwigia repens*, or *Eleocharis* sp. are known.

Range and Abundance: Ranked G3G4. The abundance of this community is not well known. It is present on many blackwater and upper tidal rivers throughout the lower Coastal Plain in North Carolina but the overall acreage is small. Few examples remain that are not heavily altered by

exotic plants. This community also occurs in South Carolina. The synonymized NVC association is questionably attributed to Georgia, Florida, and Alabama, and attributed without question to Mississippi.

Associations and Patterns: River Floating Mats occur as small patches within river channels. They may be attached to the shore or separated by a few meters from it. In tidal rivers, they may occur in close proximity to Tidal Freshwater Marsh (Narrowleaf Pond-Lily, Broadleaf Pond-Lily, or Southern Wild Rice subtypes). They usually border Cypress–Gum Swamp or Tidal Swamp, less often Blackwater Bottomland Hardwoods.

Variation: Variation has not been well defined. Several examples appear to have unique composition. It is not always clear if they are enduring communities or if they should be considered Riverine Floating Mat communities at all. If they are, several variants or subtypes could be defined.

Dynamics: The dynamics of these communities likely are unique, but they are not well known. The stability and long-term nature of them is not known. The mats are somewhat fragile and can be disturbed by unusual flood flows or storm surges. Mats may occasionally break loose and drift to new locations, and fragments of plants may lodge to start new mats. Mat dynamics may be altered by alterations in flow regimes, and they may also be affected by water pollution. It is possible that mats have become more extensive or vigorous because of nutrient enrichment. They may also have been altered by powered boats, with frequent wakes disturbing them in areas with heavy traffic.

Mats often appear zoned in a way that suggests succession, with *Hydrocotyle* dominant around the edges and extending outward but with *Sacciolepis* overtopping it in the middle of a mat. Additional species, if present at all, will generally be in the center of mats, in areas that appear to be the oldest, thickest, and most stable. There appears to be a seasonal succession, with *Hydrocotyle* active and dominant in the spring, *Alternanthera* overtopping it in summer, and *Sacciolepis* overtopping both later in the summer.

The widespread invasion of *Alternanthera philoxeroides* has severely altered most examples. In a few places, *Murdannia keisak*, usually a rooted or draping invasive plant of swamps, extends outward from shore as floating mats and can overrun natural Riverine Floating Mats.

Comments: These communities are intermittent along most larger blackwater rivers. It is unclear whether well-developed examples occur along any brownwater rivers. They seldom occur on smaller streams.

Hydrocotyle ranunculoides was considered uncommon several decades ago. It is unclear if this suggests floating mats have become more common or if survey of rivers was limited.

Rare species: Vascular plants: *Acmella repens*.

References:

